Applicant's Claim 1 calls for " A pronunciation dictionary comprising: alphabetized text and corresponding phones; and overlapping characters with previous entry are prefix delta encoded." As stated in the summary, the present invention provides a resource efficient representation of a pronunciation dictionary by efficiently formatting the pronunciation dictionary. The object is to compress the size of the pronunciation dictionary while maintaining the computability or searchability. Kanevsky patent is on "language modeling for inflected language." Language modeling is statistical, namely it describes the probability of a word following another word. It describes grammar in a probabilistic fashion. A pronunciation dictionary is not probabilistic at all. For each entry in the dictionary, i.e. a word, there is one and only one sequence of phones to describe its pronunciation. Applicant's 'alphabetically sorted text is prefix delta encoded to achieve a compression rate that is close to the asymptotically optimum Lempel-Ziv algorithm. Kanevsky splits words into prefix/ stem/ ending and then builds the language model on these sub-vocabulary instead of on the regular vocabulary. This will effectively reduce the size of vocabulary and the size of the language model. Applicant's invention does not depend on the creation of a smaller "sub-vocabulary". Applicant's prefix does not have to have any pronunciation significance or morphological significance. It does not even have to have a high frequency of appearance to be worthy of bring put into the vocabulary. As long as there is an overlap of the spelling between neighboring entries. Claims 10 and 14 include similar limitations.

Claims 2 - 4 dependent on Claim 1 are deemed allowable for at least the same reasons as Claim 1.

Claim 2-4 and 11-13 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Kanevsky in view of Kuhn et al (U.S. Patent No. 6,230,131, herein after Kuhn) and Das (U.S. Patent No.

6,148,283; herein after Das.). Claim 2 further calls for "a rule set to convert text to phones for text not in the dictionary; and an error encoded set for those entries different from the rule set wherein the entry only contains the difference with the rule set prediction." Applicant's invention takes advantage of a "text-to-phone" rule set to predict the pronunciation "before" it is encoded in the dictionary. Because the rule set can predict 70% of the phones correctly, only the other 30% of the prediction error information needs to be encoded. This prediction error information has a much lower entropy, and thus requires much less space to store. As the examiner pointed out, text to phone conversion is well known in the art. Applicant's invention as claimed in Claim 2 is to combine a rule set and a dictionary. This is not taught in Kanevsky or the other references of Kuhn and Das. Kuhn teaches a method of using decision tree questions to generate phone from spelling. This method requires "letter only trees" and "mixed trees" which require a lot of memory to store. This is to deal with pronunciation that is not in the dictionary. Applicant's invention is for a different purpose. Applicant's want to generate dictionary accurate pronunciation using a much smaller memory than required by a full dictionary. For those words that are not found in the dictionary, it will be handled by the simple public domain rule set. Das teaches a multi-stage VQ which is applied on numerical data. The examiner uses it to show the idea of error encoding. It is not applied on text encoding and not applied to pronunciation encoding. It is not seen therefore where applicant's claim 2 is obvious in view of these references. Claims 3 and 4 dependent on Claims 1 and 2 are further deemed allowable over these references for the reasons discussed above.

Claim 9 includes the same limitations as Claims 1 and 2 and is therefore deemed allowable for at least the same reasons.

Claims 11 – 13 are method claims that include similar limitations as in Claims 2-4 and are deemed allowable for at least the same reasons.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuhn in view of Das. Claim 5 calls for " a rule set to convert text to phones for text not in the dictionary; and an error encoded set for those entries different from the rule set wherein the entry only contains the difference with the rule set." As discussed previously, applicant's invention takes advantage of a "text-to-phone" rule set to predict the pronunciation "before" it is encoded in the dictionary. Because the rule set can predict 70% of the phones correctly, only the other 30% of the prediction error information needs to be encoded. This prediction error information has a much lower entropy, and thus requires much less space to store. As the examiner pointed out, text to phone conversion is well known in the art. Applicant's invention as claimed in Claim 5 is to combine a rule set and a dictionary. The prior art strive to improve the rule set and thus make it larger and larger) so that the pronunciation prediction will be as close to a dictionary as possible. None of the known prior art combine a very simple rule set (thus very small) and a dictionary (for its accuracy) to achieve dictionary pronunciation accuracy at a much smaller memory cost.

In view of the above applicant's Claim 5 is deemed allowable over the combination of Kuhn, Das and Kanevsky.

The other art made of record does not teach applicant' claimed invention. Glickman et al (US 4,342,085) teaches a dictionary compression algorithm using the idea of splitting a word into prefix / stem / suffix. Gupta et al (US 6,243,680) teaches a system to generate phone graph from spelling, then use training data to select the best path (pronunciation) from the graph. Shaw (6,363,342) teaches an editing tool that will suggest pronunciations from the spelling, and then use text-to- speech to play out the alternatives to let the user choose the best sounding

pronunciation. Shaw also uses a speech recognizer to score the alternatives against an utterance to provide additional information for the selection.

In view of the above remarks, favorable reconsideration and allowance of Claims 1-14 is respectfully requested.

Respectfully submitted,
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APPENDIX

METHOD OF GENERATING A COMPACT TEXT-TO-PHONE PRONUNCIATION DICTIONARY